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## Revived Controversy Over Fluoridation Points Up Our Basic Lack of Knowledge

FLUORIDATION of public water supplies is still a contentious issue of public health policy. In relation to the amount of heat generated about it, the possible hazard from fluoridation may be the least important of our public health concerns. Certainly the benefits and risks are far more nearly balanced than they are for such matters as environmental contamination by lead, pesticides or smog, or the health hazards of cigarette smoking.

Fluoridation, however, is a positive act of governmental authority on which public grievances can be focused more sharply than is possible for the cumulative modification of the environment by industry or the simple piling up of human wastes.

So much of the fluoridation controversy has sunk beneath the rational argument that it is not easy to identify the central issues for social decision. Paranoid attacks on public health officials who support fluoridation may also have made it difficult for them to concede that some issues do still remain to be resolved by further scientific investigation.

MY OWN summary judgment would be to acquiesce in a community decision for fluoridation, with regrets, but accepting the argument that leaving the matter to individual choice would in practice deprive many children of a positive benefit. Informed students of fluoridation are virtually unanimous in judging that adding one part per million (ppm) of fluoride to drinking water reduces dental decay by a substantial percentage.

This is not merely a cosmetic gain, for infected teeth have many serious secondary effects on lifelong health, not to mention their

cost in wellbeing and in out-and-out dollars for dental care. Few simple measures have had such a large-scale social benefit.

There is also a large and well-substantiated body of opinion, but with a few dissenters, that one ppm of fluoride can have no deleterious effect on otherwise healthy people, even over periods of many years. In fact, as pointed out by Dr. Harold C. Hodge, professor of pharmacology at the University of Rochester, in the Annual Review of Pharmacology, high fluoride intake may have a beneficial effect in strengthening the bones, particularly of elderly women who are prone to such disabling agonies as fracture of the hip. The most appropriate doses for this important aid are, however, in the realm of medical therapy rather than the water utility.

THE MOST urgent case against fluoridation is that a small part of the population may not handle fluoride in the normal way. As John Lear points out in the Saturday Review, the most poignant examples are people who have no normal kidney function whatever, and who survive with the help of artificial kidneys. When these are flushed with fluoridated tap water, the body uptake of fluoride is greatly exaggerated and the patients have no further kidney function to dispose of what they get. Many more people may be expected to have partial kidney function and to bear a somewhat comparable risk.

However, public water supplies contain many other substances, either natural or artificial, for which safety standards have also been measured only on the general "healthy" population. For example, chlorine, used to disinfect the water sup-

plies of most large cities, has never been scrutinized closely for possible effects on marginally unhealthy people, nor the common metals for hazards to the already malnourished. Quite apart from fluoride, people with known kidney trouble are only a short way ahead of the rest of us in having to look very critically at many public water supplies today.

THE SAFETY and effectiveness of a given level of fluoride are furthermore bound to vary with the presence of other salts in the water supply, especially calcium and magnesium, but

this matter has hardly been considered in the published standards for fluoridation. The real problem is our lack of basic knowledge, both about the action of very low doses of fluoride on bone and other cell and about the variety of human responses in dealing with it.

As long as we remain so ignorant of the fundamentals, we will remain in equal doubt whether to proceed with or hold back such large-scale social experiments as fluoridation, no matter how idealistic our intentions or how attractive the empirical leads that support them.

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